films OF THE WEEK

COMMON SENSE AND MATHEMATICS. 16mm, b&w, sound, 20 min. "Sets" have always been at the heart of mathematics and have been used at all levels, though not always by that name. Children first learn to sort—toys, household objects, etc. As soon as they have learned general sorting, they can learn to sort by "set"—all animal toys in one set, dolls in another, etc. When this is mastered, they can go on to sub-sets. The next step is to learn to represent the subsets by symbols rather than by actual handling. These activities are illustrated in the film by a number of examples. Audience: teachers, parents. Purchase $250 or rental $30 from Peter M. Roebeck and Co., 230 Park Ave., New York, N.Y. 10017. (Part of five film series on the Nuffield Mathematics Teaching Project in England.)

EXPLORATION AT BOULDER. 16mm, color, sound, 20 min. Depicts the pioneering efforts of scientists at the National Bureau of Standards in quantitative measurement of cryogenics, electronics, eletromagnetics, time and frequency, and atomic physics. Emphasizes communication between scientists at the frontiers of measurement science, and thousands of organizations whose leadership is on a national scale. Audience: technical and semi-technical including college science and engineering students. Free loan from Office of Technical Information and Publications, Room B08, Administration Building, National Bureau of Standards, Washington, D.C. 20234.

THE SOLAR SYSTEM. 16mm, color, sound, 21 min. Gives an up-to-the-minute survey of what we know about the sun, the moon and the planets. Includes photographs of the moon's surface taken by Apollo missions, and Mariner 6 and 7 findings on Mars. The sun and other bodies in space are examined, and the relationship of our solar system to the galaxy is described. Also examines each of the nine planets in the solar system. Audience: high school, college, general. Purchase $250 or rental $12.50 from International Film Bureau, 332 S. Michigan Ave., Chicago, Ill. 60604.

TEFLON. 16mm, color, sound, 8 min. Covers installation procedures for gasket tape of "Teflon" TFE-fluorocarbon fiber. Designed to make plant management aware of the broad capabilities of this fiber. Also goes into sufficient detail to train maintenance personnel in the correct procedures for using this tape. Includes closeups of construction of the flattened tube-shaped braid of Teflon fiber, and explains the differences between handling the new product and procedures used with older types of gaskets. Special emphasis is put on the method for making a proper joint after cutting a length of tape from the roll. Audience: plant management, maintenance personnel. Free loan from "Teflon" Marketing Division, DuPont Co., Room 12A1, Center Road Bldg., Wilmington, Del. 19898.

Listing is for readers' information of new 16mm and 8mm films on science, engineering, medicine and agriculture for professional, student and general audiences. For further information on purchase, rental or free loan, write to distributor.

to the editor

Pattern explained

In your comments upon our work concerning the subjective assessment of pain (SN: 12/6, p. 534), you state that patients who consider themselves exceptionally ill and in pain may have more difficulty in getting analgesic drugs from hospital staff than those who do not consider themselves so ill.

I feel that further explanation might be of interest to your readers.

First, there was evidence that the high frequency with which male patients were refused analgesics was related to the authoritarian attitude which existed on their ward. Next, patient requests were met chiefly by the administration of the least powerful drugs whereas analgesics given on staff initiative were those recognized as being the most potent. Last, personality studies showed that patients who complained of pain and requested drugs were neurotic extroverts whereas those with pain who did not make requests were neurotic introverts.

It therefore appears that both environmental and personality factors influence complaint behavior about pain, and the subsequent pattern of analgesic administration.

M. R. Bond, M.D.
Institute of Neurological Sciences
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High-energy panic

While those associated with the high-energy physics research program in the United States are upset by the austerity of the budget—$119.45 million requested for fiscal year 1971—I would not consider it necessary or advisable for those involved to go into a state of shock or panic. I personally do not know of a priority list or a budget ceiling which would "lead to the closing of an accelerator a year" (SN: 3/7, p. 239). I would tend to agree with the unnamed Bureau of the Budget spokesman who intimated that each new year was a new battle, rather than a check point in some sinister plot to eliminate most of the high-energy physics research program from the American scene.

Chet Holifield, Chairman
Joint Committee on Atomic Energy
Congress of the United States
Washington, D.C.

Photons too

Regarding the statement that neutrinos are unique in always having their spin axes aligned with the direction of their motion (SN: 3/28, p. 318), it could be noted that photons, which can be regarded as the particles of the electromagnetic radiation field, also have this property. The so-called "transversality condition" rules out the possibility of photon spins being perpendicular to their direction of propagation. Such effects are relegated, rather, to the Coulomb potential energy component of the electromagnetic field, in a manner which is slightly more complicated than the case for the neutrino field, which has no analogue of the Coulomb component. The smaller magnitude of the neutrino spin allows it to have only two components along any direction, while the larger magnitude of the photon spin allows it to have three components, two of which are associated with the corpuscular electromagnetic radiation, and one of which accounts for the Coulomb effects.

Kenneth J. Epstein
Chicago, Ill.

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